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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,842	11/15/2005	Atsushi Yamagishi	279167US2PCT	5824
22850	7590	05/25/2010		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
EIDE, HEIDI MARIE				
ART UNIT		PAPER NUMBER		
3732				
NOTIFICATION DATE		DELIVERY MODE		
05/25/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/551,842

**Applicant(s)**

YAMAGISHI, ATSUSHI

**Examiner**

HEIDI M. EIDE

**Art Unit**

3732

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-8, 14-23, 25, 28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-8, 14-23, 25, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB06)  
Paper No(s)/Mail Date 3/7/2010
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed March 1, 2010 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 2-8, 14-23, 25 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henning (2003/0156788) in view of Putman (5,382,163).
2. Henning teaches a dental caries detecting device and method comprising an ultraviolet light source 1 (par. 25) that is capable of irradiating ultraviolet light of at least two different intensities, including a first intensity and a second intensity (par. 25-26) onto a single measuring area of a tooth (par. 24), a fluorescence receiving portion 8 that receives fluoresce from the single measuring area of the tooth in response to the ultraviolet irradiation of the at least two different light intensities from the ultraviolet light

source (par. 36), wherein the fluorescence receiving portion receives first fluorescence by the light of the first intensity and transmits first fluorescence data to the fluorescence data analysis portion, the fluorescence receiving portion receives second fluorescence by the light of second intensity and transmits second fluorescence data to the fluorescence data analysis portion (par. 32, 34) and wherein the fluorescence data analysis portion analyzes the first and second fluorescence data in at least one wavelength band (par. 10, 26, 32, 36). Henning teaches the invention as substantially claimed and discussed above, however, does not specifically teach both the intensities being in the ultraviolet range, however, does teach using intensities in the ultraviolet range (par. 25-26). It would have been obvious to one having ordinary skill in the art at the time of the invention to select the intensities of the irradiation in any known range in order to detect preferred defects on the tooth. Henning teaches the invention as substantially claimed and discussed above, however, does not specifically teach a data display portion that displays data analyzed by the fluorescence data analysis portion.

3. Putman teaches a device for detecting dental caries comprising a data display portion 46 that displays data analyzed by the data analysis portion (col. 6, ll. 26-29). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device taught by Henning with the display device taught by Putman so the user can easily obtain the results.

4. Henning further teaches the fluorescence data portion calculates the degree (i.e. severity) of progress of dental caries based on the fluorescence intensity in a first wavelength and the fluorescence intensity in a second wavelength (par. 10, 26).

Henning teaches the wavelength ranges are selected in such a way that the magnitude of the signal reflected for a healthy portion is approximately the same in both wavelength (par. 26). Henning further teaches a third wavelength (par. 32). Henning does not specifically teach the first wavelength band is from 550 nm to 810 nm and having a wavelength wide from 0.1 nm to 260 nm, the second wavelength band is selected from a wavelength band from 380 nm to 550 nm and having a wavelength width from 0.1 nm to 70 nm and the third wavelength band is selected from 450 nm to 650 nm and having a wavelength width form 0.1 nm to 200 nm, however, it would have been an obvious matter of design choice to select the claimed ranges in order to detect preferred defects on the tooth that are detected at different wavelengths. Henning further teaches wherein the fluorescence receiving portion comprises an optical device that is capable of extracting information related to the fluorescence intensity in the first, second or third wavelength band from the visible light range (par. 25, 36) and wherein the optical device is a CMOS (see claim 63). Henning further teaches wherein the output intensity of the ultraviolet light source is adjustable (par. 25-26) and wherein the ultraviolet light source is an ultraviolet LED (par. 35).

5. As to claims 14 and 23, Henning teaches the method of obtaining information for at least two different light intensities and calculating the possibility of dental caries and determining that there is a possibility of dental caries if the sign of the result obtained from the formula is positive (par. 27). Henning does not teach calculating the dental carries degree using the exact formulas as claimed however, it would have been obvious to one having ordinary skill in the art at the time of the invention to use a

specific mathematical formula as a matter of obvious choice in known calculations to obtain the desired results. It would have been obvious to one having ordinary skill in the art that if dental caries was detected in the previous step of comparing the value to the lower end of the spectrum, to compare the value with the upper end of the spectrum to determine the severity of the dental caries. Henning teaches the invention as substantially claimed and discussed above, however, does not specifically teach a computer which performs the method as discussed above and a filter configured to pass light of at least 400 nm.

6. Putman teaches a method of detecting dental caries comprising the step of using a computer to carryout the method (col. 6, ll. 47-48, fig. 3) and a filter configured to pass light of at least 400 nm (col. 5, ll. 54-58). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the method taught by Henning with the filter and the step of using a computer as taught by Putman in order to quickly carryout the method and to produce light in a desired range.

#### ***Response to Arguments***

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEIDI M. EIDE whose telephone number is (571)270-3081. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on 571-272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**Heidi Eide**  
**Examiner**  
**Art Unit 3732**

/Heidi M Eide/  
Examiner, Art Unit 3732

5/19/2010

/Cris L. Rodriguez/  
Supervisory Patent Examiner, Art Unit 3732